

1 PROJECT NO. 00165330-75

SUBJECT: Electronic parts

DATE:

Objective:

Continuation of NIBN 415-75

5 Reference:

Results

The results of some of these tests are shown in the following Table.

Adhesive	Penbody Material	Polyimide Source	Polyimide Surface Prep	Initial Peel Strength (PMW)	Failure Mode	Days of Soak Mag 1	Subjective Peel Evaluation	Days of Soak Mag 2	Subjective Peel Evaluation	Days of Soak Cyan 1	Subjective Peel Evaluation
A	B-130	Austin	7 min O ₂ Plasma 100W**	2.5±1	Film Tear + Adh lift from pen-body	17	PSR, NPI	17	PSR	17	PSR
B	B-130	Austin	"	3.2±2	"	17	NPI, ATPB	17	PWD, NPI	17	PSR, PWD
33C	B-130*	Columbia	7 min O ₂ Plasma 100W	8.4±1	Apparent adhesion Failure	17	PE	17	PE	17	PE
39D	B-130*	"	"	5.3±3	Apparent adhesion Failure + Film Tear + Adh to pen-body	17	NPI, ATPB, PWD	17	NPI	17	PWD, ATPB
41B	B-130*	"	"	3.8±2.5	Mostly film tear + some adh to penbody	17	ATPB, NPI	17	ATPB, NPI	17	ATPB, NPI
41B	B-130	"	None	6.9±3.5	Peel at 0.01"/min but still some film tear	10	PTR, NPI	10	PTR, NPI	10	ATPB, NPI
41C	"	"	"	4.5±2.6	"	10	PTR, NPI, ATPB	10	ATPB, NPI	10	ATPB, NPI
41B	"	"	7 min O ₂ Plasma 100W	3.7±1.7	"	10	UTP, ATPB	10	UTP	10	PTR, UTP
41B	"	"	7 min O ₂ Plasma 150W	4.5±2	"	10	UTP	10	UTP	10	ATPB, NPI, UTP
41C	"	"	7 min O ₂ Plasma 150W	4.3±1.4	"	10	PTR, UTP, ATPB	10	UTP, NPI, ATPB	10	ATPB, UTP

Legend:

* Penbody material was also oxygen plasma treated

**Using PlasmaLab Unit

Adhesive A Viscous anionic cured epoxy without silane (Not RT stable)

Adhesive B Viscous anionic cured epoxy with 2% silane (Not RT stable)

Adhesive 33C Cationic cured epoxy

Adhesive 39D Anionic cured epoxy, w/o silane, w/ thioether epoxy (RT stable)

Adhesive 41B Anionic cured epoxy, w/ 2% silane, w/ thioether epoxy (RT stable)

Adhesive 41C Anionic cured epoxy, w/ 4% silane, w/ thioether epoxy (RT stable)

Subjective Peel Descriptions:

PE=peels easily

PSR=peels with some resistance

PWD=peels with difficulty

PTR=Peel tab ripped during peel attempt

UTP=Unable to peel w/o ripping of PI

ATPB=Adhesive to Pen body failure

NPI= Unable to initiate peel with razor

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